SOV/139-58-6-23/29

Density of the Liquefied Gas Solutions N_2-O_2, $A-O_2$

many times in the pycnometer. The mixture was condensed
until a certain level was reached in the pycnometer tube.
The condensed mass of the solution was determined from
the difference of pressures before and after condensation
from the volume occupied by the gas and its temperature.
The liquid level in the pycnometer and the mercury level
in the manometer were measured by means of a
cathetometer to within 0.1 mm. Oxygen was obtained by
decomposition of potassium permanganate; pure nitrogen
was produced by removal of oxygen over hot copper
filings; argon had 0.2% of oxygen. The solution
compositions were determined to within 0.05%. The
pycnometer was checked by measuring the density of pure
oxygen, nitrogen and argon. The largest difference
between the results obtained in the author's pycnometer
and those reported earlier (Ref 1, 2) did not exceed
0.2%. Densities of nitrogen - oxygen solutions with
20.4, 35, 53.85, 68.08, 81.35 and 89.30% of oxygen,
were measured between 65 and 80°K: the results are
shown in Table 1. Similar measurements were carried out
for argon-oxygen solutions containing 87.4, 78.5, 63.2

Card 2/4

SOV/139-58-6-23/29

Density of the Liquefied Gas Solutions N_2-O_2, $A-O_2$

49.1, 32.3, 19.4 and 9.85% of argon: the results are given in Table 2. In both solutions the volumes are not additive, i.e. the volume of the solution is not the sum of the volumes of the components. The experimental values of the $A-O_2$ densities are lower than those which can be expected from strict additivity and consequently the excess volume of mixing is positive (Fig 2). The measured densities of the N_2-O_2 solutions are higher than the values calculated on the basis of additivity and consequently the excess mixing volume is negative (Fig 2). According to Mesres (Ref 5,6), departure from additivity is due to one or more of the following three reasons: (a) difference in the volumes of the molecules of the components, which makes it possible to pack them more closely in a solution; (b) due to evolution (or absorption) of the energy of mixing; (c) differences in the specific binding energies of the pure components and their compressibilities. Calculations showed that in the case of nitrogen-oxygen and argon-oxygen solutions

Card 3/4

SOV/139-58-6-23/29

Density of the Liquefied Gas Solutions N_2-O_2, $A-O_2$

the departures from additivity are due to the last two
reasons. There are 2 figures, 5 tables and
13 references of which 5 are Soviet, 6 English and
2 Dutch.

ASSOCIATION: Khar'kovskiy Gosuniversitet imeni A.M.Gor'kogo
(Khar'kov State University imeni A.M.Gor'kiy)

SUBMITTED: 11th April 1958

Card 4/4

. 10.4000

65704

SOV/139-59-2-3/30

AUTHORS: Blagoy, Yu.P. and Rudenko, N.S.

TITLE: Surface Tension of Solutions of Liquefied Gases N_2-O_2, A-O_2

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1959, Nr 2, pp 22-28 (USSR)

ABSTRACT: Surface tension of a solution depends, inter alia, on: the difference between surface tensions of the pure components; energy of mixing of the solution, orientation of molecules in the surface layer and forces between these molecules and on association or dissociation of the constituent molecule. B.Ya.Pines (Ref 1) calculated adsorption and surface tension of solutions of simple liquids and related these quantities to the energy of mixing of solutions. R.V.Bakradze and B.Ya.Pines (Ref 2) showed that the formulae obtained describe correctly behaviour of surface tension of liquid alloys. The present paper reports initial results of a verification of the applicability of the Pines theory to surface tension of N_2-O and A-O_2 solutions. These studies covered the temperature range from the boiling point of the pure

Card 1/3

65704

SOV/139-59-2-3/30

Surface Tension of Solutions of Liquefied Gases N_2-O_2, A-O_2

components to the temperature of their solidification.
Two methods were used to determine surface tension:
capillary rise method (used for N_2-O_2 solutions, cf Fig 1)
and maximum pressure of gas in a bubble method (used for
A-O_2 solutions, cf Fig 2). Surface tension and its
temperature dependence were determined on N_2-O_2 solutions
with 10, 26, 54.5, 70, 80 and 90% of oxygen, and A-O_2
solutions with 19.5, 31, 47.5, 67, 81 and 90% of oxygen.
The results are shown in Tables 1 and 2 respectively.
Surface tensions were found to rise linearly with
temperature, except in dilute solutions of argon in
oxygen (in these solutions adsorption caused departures
from linearity at low temperatures). In N_2-O_2 and A-O_2
solutions surface tensions were smaller than the sums of
surface tensions of the pure components. In N_2-O_2
solutions, this non-additivity was due to non-additivity
of the interaction energy between molecules (the energy
of mixing was not equal to zero) and due to adsorption.
In A-O_2 solutions, the non-additivity was due to only the
non-additivity of the energy of interaction of molecules
Card 2/3   (the energy of mixing was positive). The results obtained

65704
SOV/139-59-2-3/30
Surface Tension of Solutions of Liquefied Gases N_2-O_2, $A-O_2$

confirmed the Pines theory. There are 4 figures,
3 tables and 8 references, 5 of which are Soviet,
1 German, 1 Dutch and 1 English.

ASSOCIATION: Khar'kcvskiy gosuniversitet imeni A.M.Gor'kogo
(Khar'kov State University imeni A.M.Gor'kiy)

SUBMITTED: June 17, 1958

Card 3/3

22128
S/056/61/040/003/008/031
B102/B202

//. 3110

AUTHORS: Grigor'yev, V.N., Rudenko, N.S.

TITLE: Density of H_2-D_2 solutions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki,
v. 40, no. 3, 1961, 757 - 761

TEXT: The influence exercised by quantum effects on the microscopic pro-
perties of the substances can be inferred from the physical properites of
isotopic solutions.   This influence becomes manifest in a deviation from
the ideal behavior, especially in light substances and at low temperatures.
From the system D_2-H_2 hitherto only the liquid-vapor and the vapor-solid
diagram has been studied.   The results obtained, however, indicate that the
behavior of this system essentially differs from that of ideal solutions.
B.G. Lazarev, V.S. Kogan, and R.F. Bulatova (ZhETF, 34, 238, 1958) dis-
covered a stratification of the D_2-H_2 isotopic mixture into two phases at
temperatures below the melting point. In this paper, the results of fur-

Card 1/5

Density of H_2-D_2 solutions ...

ther studies of the deviation from the ideal behavior of this isotopic mixture between melting point and $20.4^\circ K$ are presented. The authors attempted to determine the excess volume of the mixture: $\Delta V = V - (c_H V_H + c_D V_D)$ where V are the molecular volumes of the solution, of hydrogen and of deuterium, c the molar concentrations. The measurements were made by the method of hydrostatic weighing by means of spring balances; the device permitted a density measurement with a summational error of $(0.1-0.2)\%$. The measurements were made with temperature increase as well as with temperature reduction in the range studied. The ortho-para concentration of H_2 and D_2 corresponded to that at room temperature; no considerable change in the density, as a result of ortho-para transformation, could be observed. Also the HD formation was inconsiderable as was confirmed by studies of the same mixture on various days. The densities ρ of eight mixtures with D_2 concentrations of from 10 to 90% were measured and the molar volumes $(V=\mu/\rho, \mu$ molar weight) were calculated. The correction for the production of vapor was 0.15%. The temperatures below the melting point were calculated by means of an extrapolation formula. The numerical results

Card 2/5

Density of H_2-D_2 solutions ...

22128
S/056/61/040/003/008/031
B102/B202

are listed in a table. The results prove the considerable deviation from the ideal behavior; at all temperatures studied and all concentrations studied, the mixing volume was negative and of the same order of magnitude as that of the liquefied gases (e.g., O_2-Ar or O_2-N_2). The results obtained are compared with the theoretical results by other authors. Good agreement was obtained with $\Delta V = \Delta V_I + \Delta V_{II}$ and $\Delta V_I = \beta \Delta E_v$, $\Delta E_v \approx \Delta H - T\alpha \Delta V/\beta$

(β compressibility of the solution, ΔE_v excess mixing energy at constant volume, ΔH excess mixing enthalpy, α thermal expansion coefficient) as well as $\Delta V_{II} = \gamma c_1 c_2 (\beta_1 V_1 - \beta_2 V_2)(p_1 - p_2)$ a value close to 1 is chosen for γ instead of 0.4 (as given by Mears), which, however, cannot be substantiated. It was found that the experimentally observed contraction in the formation of the H_2-D_2 solution cannot be explained by the present theory.

There are 2 figures, 1 table and 15 references: 6 Soviet-bloc and 9 non-Soviet-bloc.

Card 3/5

22128

S/056/64/040/003/008/031
B102/E202

Density of H_2-D_2 solutions ...

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk Ukrainskoy SSR
(Institute of Physics and Technology of the Academy of
Sciences, Ukrainskaya SSR)

SUBMITTED: October 13, 1960

Card 4/5

KULENKO, N, S.

STRUCTURE AND PHYSICAL PROPERTIES OF MATTER IN A LIQUID STATE
reports read at the 4th Conference convened in KIYEV from 1 to 5 June
1959, published by the publisheir House of KIYEV University, KIYEV,
USSR, 1962

S/0120/63/000/006/0093/0094

ACCESSION NR: AP4006824

AUTHOR: Vorob'yev, G. A.; Mesyats, G. A.; Rudenko, N. S.; Smirnov, V. A.

TITLE: Pulse generator of steep 150 kv pulses

SOURCE: Pribory* i tekhnika eksperimenta, no. 6, 1963, 93-94

TOPIC TAGS: pulse generator, hv pulse generator, steep pulse generator, pulse structure

S

ABSTRACT: An improvement in the Arkad'yev-Marks. surge generator circuit is described which permits shortening the impulse front from the ordinary 10^{-7} to 10^{-9} sec. Parasitic inductance of the surge generator is compensated by a noninductive (type KOB-3) capacitor in each stage and by a special 150-pf noninductive capacitor connected across the test piece. The latter capacitor is briefly described and its design sketch is given. The conventional output sphere gap is replaced by a needle gap to suppress oscillations; the most stable switching is

Card 1/2

Card 2/

BLAGOY, Yu.P.; RUDENKO, N.S.

Density of solutions of liquid gases N_2-O_2, $Ar-O_2$. Izv.vys.ucheb.zav.; fiz. no.6:145-151 '59.   (MIRA 12:4)

1. Khar'kovskiy gosuniversitet im. A.M. Gor'kogo.
         (Gases--Liquifaction)   (Specific gravity)

L 36965-65   EWT(1)/EWA(h)   Pz-6/Peb   TT/AT
ACCESSION NR: AP5007036   S/0120/65/000/001/0109/0111

AUTHOR: Vorob'yev, G. A.; Rudenko, N. S.

TITLE: Generator of 500-kv nanosecond pulses

SOURCE: Pribory i tekhnika eksperimenta, no. 1, 1965, 109-111

TOPIC TAGS: pulse generator, nanosecond pulse

ABSTRACT: The generation of short pulses is based on discharging a non-
inductive capacitor into a transmitting cable. Conventional pulse generator 1 (see
Fig. 1 of Enclosure) through charge inductance 2 feeds special capacitor 3, which
consists of two cylinders with a 15-mm glycerine-filled gap between them. The
initial Marx generator has an impact capacitance of 0.0125 µf and develops a
voltage of 150 kv. The inner cylinder also serves as a discharge chamber,
housing a switching gap in a nitrogen atmosphere under 16-atm pressure. The
4-m long transmission line consists of a transformer-oil-filled 80-mm-diameter

Card 1/3

L 36965-65
ACCESSION NR: AP5007036

brass tube and an internal 8-mm conductor; its characteristic impedance is 100 ohm. A capacitive voltage divider is mounted at the line's end. Small chamber 6 is intended for test specimens. Calibration particulars are given, and oscillegrams of pulses are presented. Orig. art. has: 6 figures. [03]

ASSOCIATION: Tomskiy politekhnicheskiy institut (Tomsk Polytechnic Institute)

SUBMITTED: 03Jan64   ENCL: 01   SUB CODE: EC

NO REF SOV: 005   OTHER: 003   ATD PRESS: 3221

Card 2/3

L 15156-66   EWT(m)   DIAAP

ACC NR: AP6000190   SOURCE CODE: UR/0056/65/049/005/1394/1398

AUTHOR: Rudenko, N. S.

ORG: Tomsk Polytechnic Institute im. S. M. Kirov (Tomskiy politekh-
nicheskiy institut)

TITLE: A new method of high voltage supply to streamer chambers

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49,
no. 5, 1965, 1394-1398

TOPIC TAGS: particle track, particle detector, power supply, spark
chamber

ABSTRACT: To increase the brightness of streamer chambers and facili-
tate the photography of the tracks, the author developed and verified
experimentally a high voltage supply for a streamer chamber, making
possible production of narrow bright tracks with good stability. The
tests of the power supply are described elsewhere (Izvestiya VUZov,
Fizika v. 4, 178, 1965). The present article consists of theoretical
calculations and an analysis of the experimental results. The brightness
(the number of ionizations in each individual streamer) is increased
without a substantial increase of the dimensions of the ionized region
by applying a series of alternating-sign pulses after the main pulse on

Card   1/2

L 15156-66

ACC NR: AP6000190

the chamber (this procedure was suggested by G. A. Vorob'yev in a private communication). The test procedure and apparatus are described in detail. Particular attention is paid to the gradual transition from the tracking mode to the projection mode, when high-quality tracks can be obtained with almost the same size and brightness of the luminous centers (δ = 1--2 mm) in the directions along and perpendicular to the electric field. The experimental results are in satisfactory agreement with the calculations and it is concluded that the new power supply yields good tracks more consistently than when single high voltage pulses are applied to the chamber plates. Author thanks G. A. Vorob'yev for continuous interest in this work and for a discussion of the results. Orig. art. has: 2 figures and 1 table.

SUB CODE: 20/ SUBM DATE: 26May65/ ORIG REF: 004/ OTH REF: 003

Card 2/2 vmb

ACC NR: AP7007677   SOURCE CODE: UR/0386/66/003/002/0061/0063

AUTHOR: Vorob'yev, G. A.; Rudenko, N. S.

ORG: Polytechnical Institute im. S. M. Kirov, Tomsk (Politekhnicheskiy institut)

TITLE: Isotropic spark chamber

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu, v. 3, no. 2, 1966, 61-63

TOPIC TAGS: spark chamber, charged particle, particle track, particle trajectory

ABSTRACT: The authors propose a spark chamber with three mutually perpendicular pairs of electrode plates in order to register in spark form the track of a particle moving in an arbitrary direction in space. A pulsed voltage of fixed duration and amplitude is applied to each pair of plates and a time interval is established between the instant of termination of the voltage pulse on the first pair of plates and the instant of application of the pulse to the second (with a similar time lag between the second and third pulses). In this way the electric field in the chamber reverses its direction space three times. To explain the operating principle of the chamber, three possible directions of the particle track are distinguished: 1) The particle track is inclined 0° - 45° to the direction of the electric field of the first plate pair. In this angle range, a pulse applied to the first pair of plates produces a spark that follows the inclined particle trajectory. The second and third pulses

Card 1/3   UDC: none

ACC NR: AP7007677

will exert no great influence on the already-produced high-density plasma, because of their short duration and the short time delay relative to the first pulse, so that the particle density in the plasma will not drop noticeably during the time of action of these pulses; 2) The particle track is inclined 0^c - $45°$ to the electric field of the second plate pair. Application of the first pulse produces a column of avalanches (as in a streamer chamber) along the particle track. At the same time, a voltage pulse of this duration and amplitude is perfectly adequate for production of a spark if the particle track coincides with the direction of the electric field. When the second pulse is applied, a spark is produced along the particle track. In this case the conditions for spark production are better than in the first, since the interaction between neighboring avalanches is made much stronger by the larger number of charged particles in each avalanche than in the first case; 3) The particle track is inclined $0°$ - $45°$ to the electric field of the third set of plates. The first voltage pulse acts as in the second case. The second pulse develops the already-produced avalances in a direction perpendicular to the first. The third voltage pulse produces the spark along the particle track. The experimental setup is shown in Fig. 1. A voltage pulse with rise time 2×10^{-9} sec, obtained with the aid of a special generator, is applied to each pair of electrode pairs by a separate cable. The cable lengths were chosen such that the delay between pulses was 50 nsec. The duration of each pulse was regulated independently by means of three discharge gaps (nitrogen, 10 atm pressure) placed at the ends of the lines ahead of the electrode plates. The electrode plates were insulated from each other by immersion in transformer oil in a Plexiglas chamber with double walls. An external air-filled chamber contained
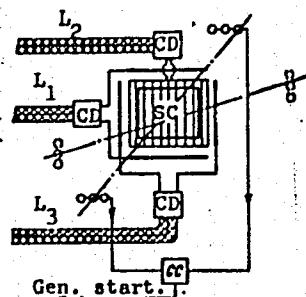
Card 2/3

ACC NR: AP7007677

Fig. 1. High-voltage supply to spark chamber. CD - cutoff discharge gap, CC - coincidence circuit, SC - spark chamber.

a glass chamber filled with neon at 760 mm Hg. The dimension of the glass chamber was 10 x 10 x 10 cm. The field intensity was ~15 kV/cm. The authors thank Corresponding member A. I. Alikhanyan and Professor A. A. Vorob'yev for interest and collaboration on this work and Engineer M. I. Kozlov for assistance in carrying out the experiment. Orig. art. has: 4 figures.

SUB CODE: 20 / SUBM DATE: 15Oct65 / ORIG REF: 002 / OTH REF: 001

Card 3/3

ACC NR: AP7004667   (A)   SOURCE CODE: UR/0076/66/040/008/1969/1969

AUTHOR: Rudenko, N. S.; Konareva, V. G.

ORG: Physicotechnical Institute, Academy of Sciences, UkrSSR (Fiziko-tekhnicheskiy institut Akademii nauk UkrSSR)

TITLE: Viscosity of liquid deuterohydrogen

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 8, 1966, 1969

TOPIC TAGS: liquid hydrogen, deuterium, fluid viscosity, deuterium compound

ABSTRACT: The viscostiy of liquid deuterohydrogen HD was measured in the 16.7-20.4°K range. Fig. 1 shows the dependence of the viscostiy coefficient of HD (and also D_2 and H_2 for comparison) on the reduced temperature. Values of the viscosity coefficients at several temperatures are given below:

| t, °K	16.6	17.0	18.0	19.0	20.0	20.4
$10^4 \eta$, CGS	338	321	284	255	231	223

It is apparent that the viscosity of liquid HD lies between that of liquid H_2 and liquid D_2. Although the viscosity of the liquid isotopes increases with their mass, no simple relationship was found between mass and viscosity. Orig. art. has: 1 figure.

Card 1/2   UDC: 541.11

ACC NR: AP7004667

Fig. 1.   Viscosity coefficients vs. reduced temperature:
1 - H$_2$; 2 - HD; 3 - D$_2$.
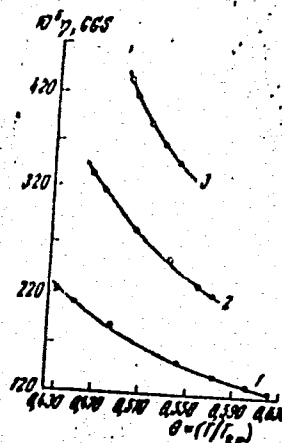
SUB CODE: 07,20/SUBM DATE: 02Nov65/ ORIG REF: 002/ OTH REF: 004

Card 2/2

RUDENKO, N.S.

Method for obtaining a bright and well localized particle
track in a streamer chamber. Izv. vys. ucheb. zav.; fiz.
8 no.4:178-179 '65.   (MIRA 18:12)

1. Tomskiy politekhnicheskiy institut imeni S.M. Kirova.
Submitted March 13, 1964.

L 5328-66   EWT(m)/EPF(c)/EWP(t)/EWP(b) --- DIAAP/IJP(o) JD-----
ACCESSION NR: AP5021106   UR/0056/65/049/002/0447/0448

43
42
B

AUTHOR: Rudenko, N. S.; Konareva, V. G.

TITLE: Viscosity of hydrogen isotope solutions

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 2, 1965, 447-448

TOPIC TAGS: gas viscosity, viscosimeter, hydrogen, deuterium

ABSTRACT: This is a continuation of earlier work (ZhFKh v. 38, 2700, 1964), where measurements of the viscosity of H_2-D_2 solutions were reported. In the present investigation the authors used a capillary viscosity meter, described by them elsewhere (ZhFKh v. 37, 2761, 1963) to measure the viscosity of H_2-HD and HD-D_2 solutions in the entire range of concentrations, at temperatures 15--20K. In all the investigated solutions, the dependence of the viscosity coefficients on the concentration had the same character and the summary viscosity coefficients were smaller than the sums of the viscosity coefficients of the individual components. The deviation of the viscosity coefficients from additivity is found to be related with the mass difference of the components of the solution. Orig. art. has: 2 figures and 1 table.

Card 1/2   0901095

VOROB'YEV, G.A.; RUDENKO, N.S.

    Nanosecond 500 kv voltage pulse generator. Prib. i tekh. eksp. 10
    no.1:109-111   Ja-F '65.   (MIRA 18:7)

    1. Tomskiy politekhnicheskiy institut.

RIDENKO, N.S.; KONAREVA, V.G.

Viscosity of H_2 -- D_2 solutions. Zhur.fiz.khim. 38 no.11:2700-2701
N '64.
(MIRA 18:2)

L 42989-65   EWT(m)/EPF(c)/EPR/EWP(t)/EWP(b)   Pr-4/Ps-4   IJP(c)/RPL   JD/WW/JW

AUTHOR: Rudenko, N. S.; Konareva, V. G.

TITLE: Viscosity of liquid pH_2 and oH_2

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 2, 1965, 769-770

TOPIC TAGS: liquid hydrogen, liquid hydrogen viscosity, hydrogen viscosity

ABSTRACT: The viscosity of pH_2 solutions was measured using the capillary viscosimeter method. Measurements were made in the 14.5-20.4°K temperature range for concentrations of 25%, 50% and 99.8% pH_2. Viscosity was calculated from these data, assuming the viscosity coefficients for these solutions to be additive values. Data on the viscosity coefficients are shown in table 1 of the Enclosure. At $T = 15$°K the viscosity coefficient of pH_2 is approximately 4.5% less than that of oH_2. The difference in the viscosity coefficients decreases with an increase in temperature. The densities of these solutions were obtained from data on molar volumes of pH_2 and nH_2. Orig. art. has: 1 table.

Card 1/3

L 42989-65
ACCESSION NR: AP5006537

ASSOCIATION: none

SUBMITTED: 14Dec64   ENCL: 01   SUB CODE: NP, GC

NO REF SOV: 001   OTHER: 001

Card 2/3

VOROB'YEV, G.A.; GOLYNSKIY, A.I.; RUDENKO, N.S.

Performance of a small-size pulse generator for power
supply to a neutron accelerating tube. Izv. TPI 122:
140-141 '62.   (MIRA 17:9)

RUDENKO, N.S.; TSVETKOV, V.I.

Study of the pulse electric strength of certain liquids.
Zhur. tekh. fiz. 34 no.6:1079-1082 Je '64.   (MIRA 17:9)

1. Tomskiy politekhnicheskiy institut imeni Kirova, Tomsk.

$4 c \rho 4 / \mathcal{E}$

ACCESSION NR: AP4040312   S/0057/64/034/006/1079/1082

AUTHOR: Rudenko, N.S.; Tsvetkov, V.I.

TITLE: Investigation of the impulse dielectric strength of several liquids

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.6, 1964, 1079-1082

TOPIC TAGS: dielectric strength, dielectric property, liquid dielectric, capacitor

ABSTRACT: The impulse dielectric strength of tap water, doubly distilled water, glycerine, and ethyl alcohol was measured at gap lengths of 5, 10, 25, 50, 100 and 500 microns and pulse durations from 0.1 to 10 microsec. The measurements were under- taken primarily to evaluate the liquids for use as dielectrics in high voltage pulsed capacitors. A single stage pulse generator producing rectangular pulses with amplitude up to 20 kV and a rise time of 0.01 microsec was employed for the measure- ments at gap lengths up to 100 microns. For the 500 micron measurements a five stage pulse generator was used which produced up to 100 kV pulses with a rise time of 0.1 microsec. Molybdenum electrodes 0.45 mm in diameter were used for the measurements at 100 microns or less and 1.5 mm diameter steel electrodes were used for the 500 micron measurements. The gap lengths were measured to 0.5 micron with a 120 power

Card 1/3

ACCESSION NR: AP4040312

ASSOCIATION: Tomskiy politekhnicheskiy institut im. S.M.Kirova, Tomsk (Tomsk Poly-
technic Institute)

SUBMITTED: 25 Jun63   DATE ACQ: 19Jun64   ENCL: 00

SUB CODE: EM, EC   NR REF SOV: 002   OTHER: 002

Card 3/3

ACCESSION NR: AP4040312   S/0057/64/034/006/1079/1082

AUTHOR: Rudenko, N.S.; Tsvetkov, V.I.

TITLE: Investigation of the impulse dielectric strength of several liquids

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.6, 1964, 1079-1082

TOPIC TAGS: dielectric strength, dielectric property, liquid dielectric, capacitor

ABSTRACT: The impulse dielectric strength of tap water, doubly distilled water, glycerine, and ethyl alcohol was measured at gap lengths of 5, 10, 25, 50, 100 and 500 microns and pulse durations from 0.1 to 10 microsec. The measurements were under- taken primarily to evaluate the liquids for use as dielectrics in high voltage pulsed capacitors. A single stage pulse generator producing rectangular pulses with amplitude up to 20 kV and a rise time of 0.01 microsec was employed for the measure- ments at gap lengths up to 100 microns. For the 500 micron measurements a five stage pulse generator was used which produced up to 100 kV pulses with a rise time of 0.1 microsec. Molybdenum electrodes 0.45 mm in diameter were used for the measurements at 100 microns or less and 1.5 mm diameter steel electrodes were used for the 500 micron measurements. The gap lengths were measured to 0.5 micron with a 120 power

Card 1/3

ACCESSION NR: AP4040312

microscope, and the electrodes were reconditioned after every 10 to 20 discharges.
For each overvoltage the probable breakdown time was obtained by averaging 10 to 20
breakdown times by means of a Laue curve (M.Laue, Ann.Phys.76,261,1925). The disper-
sion of the breakdown times decreased with increasing overvoltage. The dielectric
strengths increased with decreasing gap length as well as with decreasing pulse du-
ration. The curves of dielectric strength versus pulse duration were all convex to
both axes, and their bends were rather sharply marked for the longer gap lengths.
For a given gap length the bend occurred at about the same pulse duration (1.5 micro-
sec for the 500 micron gap) for all four liquids, and at shorter pulse durations for
the shorter gaps. This suggests that the breakdown at high overvoltage involves
spanning of the gap by a charge avalanche. The dielectric strength continued to de-
crease with increasing pulse duration over the full range (to 10 microsec) investi-
gated. The authors suggest that the breakdown at long pulse duration is due to a
thermal effect arising from the high conductivity of the liquids. The most suitable
of the liquids for use as pulsed capacitor dielectrics are doubly distilled water
and glycerine. Such capacitors should be pulsed for one microsecond or less.' "In
conclusion the authors express their gratitude to G.A.Vorob'yev, candidate in tech-
nical sciences, for suggesting the topic, for his interest in the work and for dis-
cussing the results." Orig.art.has: 2 figures and 1 table.

Card 2/3

ACCESSION NR: AP4040312

ASSOCIATION: Tomskiy politekhnicheskiy institut im. S.M.Kirova, Tomsk (Tomsk Poly-
technic Institute)

SUBMITTED: 25 Jun63   DATE ACQ: 19Jun64   ENCL: 00

SUB CODE: EM, EC   NR REF SOV: 002   OTHER: 002

Card 3/3

ACCESSION NR: AP4042374   S/0056/64/047/001/0092/0096

AUTHORS: Grigor'yev, V. N.; Rudenko, N. S.

TITLE: Surface tension of liquid isotopes of hydrogen and of H_2--D_2 solutions

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 1, 1964, 92-96

TOPIC TAGS: hydrogen, deuterium, surface tension, deuterated compound

ABSTRACT: The authors hope to resolve the discrepancy between the theoretically calculated and experimentally observed relatively large decrease in volume (~1%) upon formation of solutions of hydrogen and deuterium, which cannot be explained within the framework of the simplest theory, by obtaining information on other properties of solutions of hydrogen isotopes. Experimental data are presented on the temperature dependence of the surface tension of hydrogen,

1/6

ACCESSION NR: AP4042374

deuterium, and deuterohydrogen, and solutions of hydrogen and deu-
terium. To permit comparison with calculations based on the quantum
theorem of corresponding states, the authors first determine the sur-
face tensions of the pure isotopes. These measurements are of in-
dependent interest since the published data on the surface tension
of hydrogen are contradictory, thus casting doubt on the data on
deuterium, which were measured with similar installations. The pro-
cedure and equipment used to measure the surface tension of the pure
isotopes of hydrogen were described elsewhere (V. N. Grigor'yev,
ZhETF, v. 45, 98, 1963). The same equipment was used for the solu-
tions of hydrogen and deuterium. The method of preparing the solu-
tions and of measuring their concentrations was the same as described
by the authors elsewhere (ZhETF, v. 40, 757, 1961). The data on
the surface tension of hydrogen agree well with the results obtained
by Kamerlingh-Onnes (Comm. Leiden v. 13, 142d, 1914) while the data
previously obtained for deuterium by Van Itterbeek and Van Paemel
(Physica, v. 7, 325, 1940) are approximately 5% too high. The sur-

2/6

ACCESSION NR: AP4042374

face tension of the solutions was found to be several per cent lower than the additive values, in qualitative agreement with the theoretical calculations of I. Pirgogine (Molecular Theory of Solutions, Amsterdam, 1958). "The authors are grateful to O. N. Grigor'yeva for help with the measurements." Orig. art. has: 3 figures, 1 formula, and 2 tables.
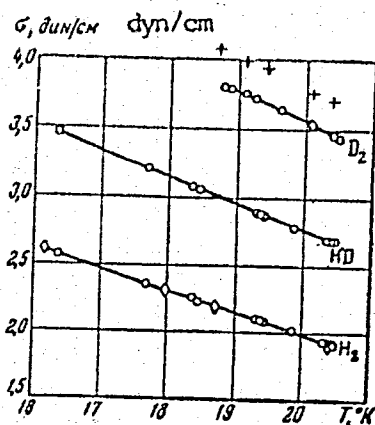
ASSOCIATION: None

SUBMITTED: 18Feb64   ENCL: 03

SUB CODE: NP   NR REF SOV: 004   OTHER: 009

3/6

ACCESSION NR: AP4042374

Temperature dependence of surface tension of hydrogen isotopes

o – present work

Card 4/6

Surface tensions of hydrogen and deuterium solutions

T, °K	σ, dyn/cm	$\frac{\Delta\sigma}{\sigma}$, %	T, °K	σ, дин/см	$\frac{\Delta\sigma}{\sigma}$, %	T, °K	σ, дин/см	$\frac{\Delta\sigma}{\sigma}$, %
$c_{D_2}=7{,}2\%$			$c_{D_2}=32{,}8\%$			$19{,}96_6$	$2{,}72_1$	$2{,}5$
$20{,}44$	$1{,}98_1$	$1{,}4$	$20{,}42$	$2{,}31_2$	$2{,}9$	$19{,}39_6$	$2{,}82_6$	$2{,}7$
$19{,}98$	$2{,}04_4$	$1{,}9$	$20{,}41$	$2{,}31_7$	$2{,}9$	$18{,}94$	$2{,}91_1$	$3{,}2$
$19{,}66$	$2{,}11_4$	$1{,}0$	$20{,}41$	$2{,}31_7$	$2{,}7$	$18{,}40_6$		—
$19{,}28$	$2{,}18_2$	$1{,}2$	$19{,}27$	$2{,}53_2$	$2{,}4$	$18{,}93$	$2{,}91_3$	$2{,}8$
$18{,}82$	$2{,}25_7$	$1{,}0$	$18{,}86$	$2{,}60_2$	$2{,}4$	$17{,}93$		—
$18{,}48$	$2{,}31_4$	—	$18{,}25$	$2{,}70$	—	$17{,}34$		—
$18{,}23$	$2{,}35_6$	—	$18{,}48$	$2{,}67_6$	—	$16{,}77$		—
$17{,}04$	$2{,}40_4$	—	$17{,}92$	$2{,}76_9$	—	$16{,}69$		—

Card 5/6

ACCESSION NR: AP4042374   ENCLOSURE: 03

$c_{D_s}= 15,2\%$			$c_{D_s}=38,6\%$			$c_{D_s}= 74,1\%$		
20,44	$2,09_7$	1,2	20,45	$2,34_3$	3,2	20,44	$2,89_2$	3,2
20,43	$2,10_0$	1,0	20,44	$2,37_2$	2,6	20,44	$2,89_5$	3,1
19,61	$2,24_2$	1,1	20,46	$2,37_0$	2,5	20,43	$2,90_2$	2,9
19,17	$2,31_5$	1,3	20,44	$2,36_6$	2,5	19,99	$2,97_9$	3,1
18,80	$2,38_6$	0,8	20,43	$2,35_9$	3,2	19,94	$2,98_8$	3,3
18,35	$2,45_3$	—	20,39	$2,39_1$	2,1	19,39	3,10	3,0
17,74	$2,57_7$	—	20,32	$2,39_2$	2,6	18,96	$3,18_4$	3,0
			19,46	$2,33_6$	3,2	18,56	$3,24_2$	—
$c_{D_s}= 23,6\%$			18,85	$2,63_6$	3,6	18,42	$3,29_5$	—
20,43	$2,19_8$	2,3	18,40	$2,76_8$	—	18,14	3,30	—
20,41	$2,20_6$	2,0	17,21	$2,92_1$	—	17,81	$3,37_2$	—
20,08	$2,26_7$	1,8	17,14	$2,95_4$	—	$c_{D_s}= 82,3\%$		
19,48	$2,37_1$	1,8	$c_{D_s}= 49,9\%$			20,38	$3,00_9$	3,3
19,43	$2,38_1$	1,8				20,36	$3,01_8$	3,2
18,69	$2,52_4$	1,4	20,46	$2,62_4$	3,7	19,48	$3,17_3$	4,2
18,08	$2,62_4$	—	$20,44_5$	$2,62_4$	3,2	19,17	$3,24_1$	4,2
17,47	2,71	—	20,44	2,63	3,8	18,27	$3,40_1$	—
16,44	$2,86_8$	—	20,43	2,64	4,0	17,9	$3,47_2$	—

(continuation of enclosure #2)

Card 6/6

VORONIN, O.L.; MESYATS, G.A.; PEISAKHOVICH, ...

    Nanosecond 150 kv. pulse generator, Izv.i vyssh. ucheb. ...
    no.6:93-94. JL '63.   (MIRA 16:6)

    1. Nauchno-issledovatel'skiy institut yadernoy fiziki, elektroniki
    i avtomatiki Tomskogo politekhnicheskogo instituta.

RUDENKO, N.S.; KONAREVA, V.G.

Viscosity of liquid hydrogen and deuterium. Zhur. fiz. khim.
37 no.12:2761-2763 D '63.   (MIRA 17:1)

1. Fiziko-tekhnicheskiy institut AN UkrSSR.

GRIGOR'YEV, V.N.; RUDENKO, N.S.

Density of H_2 - D_2 liquid solutions. Ukr.fiz.zhur. 7 no.7:
737-739 Jl '62.   (MIRA 15:12)

1. Fiziko-teknicheskiy institut AN UkrSSR, Khar'kov.
   (Hydrogen—Isotopes) (Solution (Chemistry))
                    (Densitometers)

RUDENKO, N. V. Cand Chem Sci -- (diss) "Alkylation of benzene and its substitutes by alcohols in the presence of alumosilicate catalyzer under atmospheric pressure." Mos, 1959. 9 pp with graphs (Mos State Univ im M. V. Lomonosov), 150 copies (KL, 48-59, 113)

5 (3)
AUTHORS: Turova-Polyak, M. B., Rudenko, N. V.   SOV/20-126-6-40/67

TITLE: Alkylation of Benzene and Some Substituents by Isopropyl Alcohol
          Over an Alumino-silicate Catalyst at Atmospheric Pressure
          (Alkilirovaniye benzola i yego zameshchennykh izopropilovym
          spirtom nad alyumosilikatnym katalizatorom pri atmosfernom
          davlenii)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 6, pp 1289 - 1292
          (USSR)

ABSTRACT: With the increasing importance of the alkyl products the sub-
          ject mentioned in the title becomes more and more interesting.
          The catalysts mentioned in the title are widely used, the al-
          kylation in the vapor phase in their presence, however, is still
          insufficiently investigated. The authors investigated the al-
          kylation of the following: benzene, toluene, phenol, chlorobro-
          mo- and nitrobenzene by isopropyl alcohol. They obtained A)
          Cumene (yield 79%) (source for the production of phenol and ace-
          tone, Ref 1); B) zymol from which also styrene homologues (mono-
          mers for the production of artificial rubber) (Ref 2) may be
          produced; C) alkyl phenols (washing agent), phenol-formaldehyde-
Card 1/4   -resins, initial substances for frostproof rubbers, Ref 3); D)

Alkylation of Benzene and Some Substituents by   SOV/20-126-6-40/67
Isopropyl Alcohol Over an Alumino-silicate Catalyst
at Atmospheric Pressure

Halogen substituents of benzene (semiproducts for various syn-
theses, especially production of halogen-styrenes, Ref 4) etc.
The yields of the latter were: isopropyl-bromine-benzene 69%,
zymol 79%, isopropyl-phenol - 81% and isopropyl-chlorine-ben-
zene 63% of the amount of alcohol used for the reaction. Nitro-
benzene could not be alkylated. The activity of the catalyst
remains sufficiently high for approximately 19 hours (Fig 1).
Therefore the catalysts mentioned in the title are suited for
alkylation because of the simple regeneration and their anti-
corrosion properties. The results obtained by the authors con-
cerning the character of the functional groups in the benzene
cycle, the temperature at which the reaction is carried out,
the velocity of the supply of the reacting components, and their
molar ratio agree well with the theoretical principles. The
presence of toluene in alkylation products besides p-zymol and
m-zymol is in contradiction with the data on the mainly orient-
ed action of the methyl group in an o- and p-position. The in-
terrelation of the products of normal and anormal orientation
(Ref 6) depends on the alkylation conditions. The higher the

Card 2/4

Alkylation of Benzene and Some Substituents by   SOV/20-126-6-40/61
Isopropyl Alcohol Over alumino-silicate Catalyst
at Atmospheric Pressure

activity of the catalyst, the duration and the temperature of
the reaction, the stronger is the tendency towards a formation
of an anomalous m-derivative. The mechanism of the catalytic
alkylation of the aromatic compounds by alcohols has not yet
been definitely determined. Various considerations on a possible
explanation of this mechanism are given (Refs 7,8,10,12,14,15).
Equations (1), (2) and (3) describe the general mechanism of
the reaction investigated. The authors carried out the alkyla-
tion in the presence of 100 ml globular alumo silicate for 1 -
3.5 hours at 200 - 350°. Figure 3 shows the optimum yields of
cumene, cymol, isopropyl-chlorobenzene, isopropyl-bromobenzene,
and isopropyl-phenol. Figure 4 shows the dependence of the
yields on the velocity of the supply. In all cases the reduc-
tion of the alcohol concentration favored the increase of the
yield of monoalkyl products. The structure of the alkylation
products was confirmed by the production of derivatives in some
cases also spectroscopically. There are 4 figures, 1 table, and
16 references, 10 of which are Soviet.

Card 3/4

Alkylation of Benzene and Some Substituents by   SOV/20-126-6-40/67
Isopropyl Alcohol Over an Alumino-silicate Catalyst
at Atmospheric Pressure

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
                (Moscow State University imeni M. V. Lomonosov)

PRESENTED: March 4, 1959, by A. A. Balandin, Academician

SUBMITTED: March 4, 1959

Card 4/4

5.3400

77357
SOV/79-30-1-18/78

AUTHORS: Turova-Polyak, M. B., Rudenko, N. V., Ling Li-tang

TITLE: Catalytic Alkylation of Phenol With Isopropyl Alcohol

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 1, pp 94-98
                (USSR)

ABSTRACT: The effect of the hydroxyl group on alkylation of phenol
                was studied. The optimum conditions of the reaction
                over alumino-silicate catalyst are:
                temperature, 210-230°, and space velocity of reagents,
                0.2 hr^{-1}. Increasing the concentration of phenol up
                to 20 moles per 1 mole of alcohol decreases the yield
                of diisopropylphenols and increases the yield of mono-
                isopropylphenols up to 81%. Recycling the unreacted
                phenol raises the yield of monoisopropylphenol to 95%.
                Increasing the concentration of alcohol in the reaction
                mixture facilitates the formation of dialkylated
                products. The obtained monoisopropylphenol consists
                primarily of the para isomer with an admixture of the
Card 1/4   ortho isomer. The activity of catalyst decreases

Catalytic Alkylation of Phenol With
Isopropyl Alcohol

77357
SOV/79-30-1-18/78

sharply after 19 hr of use, but it can be fully regene-
rated by treatment with a strong stream of dry air at
500-550°. The mechanism of the alkylation is explained
by the formation of carbonium ions, which alkylate phenol.

$$C_3H_7OH \rightarrow CH_2 = CH - CH_3$$

$$CH_2=CH-CH_3 + H^+ \text{ (cat)} \rightarrow CH_3-\overset{+}{C}H-CH_3$$

$$CH_3-\overset{+}{C}H-CH_3 + \underset{}{\text{(phenol-OH)}} \rightarrow \left[HO-\text{(ring)}-CH\overset{CH_3}{\underset{CH_3}{<}} \right] \rightarrow HO-\text{(ring)}-CH\overset{CH_3}{\underset{CH_3}{<}} + H^+$$
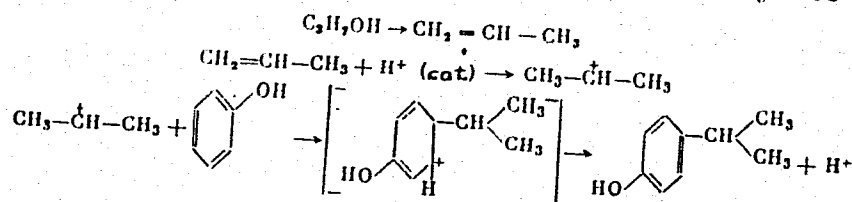
The fractional distillation of the obtained product
produced several fractions. One of them, bp 124-124.3°,
mp 15.5°, n_D^{20} 1.5282, was o-isopropylphenol. Reaction
of o-isopropylphenol with monochloroacetic acid yielded
o-isopropylphenoxyacetic acid, mp 131.5-132.5°. Reaction
of o-isopropylphenol with potassium persulfate produces
a blue solution, which is characteristic of

Card 2/4

Catalytic Alkylation of Phenol With
Isopropyl Alcohol

77357
SOV/79-30-1-18/78

o-isopropylphenol. The fraction $124.3-136.8°$, n_D^{20}
1.5271 yielded o-isopropylphenol, $n_D^{20} 1.5280$, by freez-
ing out, and a small amount of p-isopropylphenol, mp
$60°$. The fraction $136.8-137.3°$ yielded crystals of p-
isopropylphenol, mp $60°$ (after recrystallization from
alcohol) on cooling. Reaction of p-isopropylphenol
with monochloroacetic acid yielded p-isopropylphenoxy-
acetic acid, mp $81.5-82.3°$, and with benzoyl chloride,
its benzoate, mp $71.2-72.2°$. When an alkaline solution
of p-isopropylphenol was treated with potassium persul-
fate, an orange solution was obtained, which is charac-
teristic of p-isopropylphenol. From the fraction with
bp above $231°$, a 2,4-diisopropylphenol, bp $144.5-145.6°$
(20 mm), $n_D^{20} 1.5120$, was obtained. There are 7 figures;
33 references, 9 Soviet, 18 U.S., 3 U.K., 2 Japanese,
1 German. The 5 most recent U.S. references are:
Jordan, T., Vapor Pressure of Organic Compounds, N.Y.
(1954); Sowa, F., Hinton, H., J. Am. Chem. Soc.,

Card 3/4

Catalytic Alkylation of Phenol With
Isopropyl Alcohol

77357
SOV/79-30-1-18/78

54, 3694 (1932); Hansch, C., Robertson, D., J. Am. Chem.
Soc., 72, 4810 (1950); Sowa, F. C., Hennion, H. F.,
Nieuwland, J., J. Am. Chem. Soc., 57, 709 (1935);
Carpenter, M., Wood, T., Easter, W., J. Org. Ch., 615
(1951).

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy
universitet)

SUBMITTED: January 12, 1959

Card 4/4

TUROVA-POLYAK, M.B.; RUDENKO, N.V.

Catalytic alkylation of bromobenzene with propyl alcohols. Zhur.ob.
khim. 31 no.6:1982-1985 Je '61. (MIRA 14:6)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Benzene) (Propyl alcohol)

37636

S/076/62/036/005/011/013
B101/B110

AUTHORS: Oreshko, V. F. (Deceased), Gorin, L. F., and Rudenko, N. V.

TITLE: Composition of the products of starch radiolysis

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 5, 1962, 1084-1085

TEXT: The composition of gas obtained by irradiating potato starch
(16.4% moisture) with Co^{60} (doses, $12 \cdot 10^6$ and $20 \cdot 10^6$ r; dose rate,
2000 r/min) in sealed glass ampoules was investigated by chromatography.
Results: (1) The gaseous products of radiolysis contained neither
CH_4 nor CO. (2) H_2 and CO_2 were formed in a ratio of 1:1, which indicates
the destructive cleavage of the glucopyranose rings, resulting in the
formation of pentoses and formaldehyde. (3) The following mechanism is
suggested for the cleavage: (a) The terminal glucose rings are split off
to form pentoses and formaldehyde; (b) the formaldehyde is oxidized to
formic acid by the oxygen in the ampoule; (c) the formic acid decomposes
under the effect of gamma radiation in $H_2 + CO_2$. There is 1 table.

Card 1/2

Composition of the products ...

S/076/62/036/005/011/013
3101/3110

ASSOCIATION: Moskovskiy tekhnologicheskiy institut pishchevoy
                promyshlennosti (Moscow Technological Institute of the Food
                Industry)

SUBMITTED: August 1, 1961

Card 2/2

BABIN, Ye.P.; RUDENKO, N.V.; SIDORENKO, L.M.; BORODINA, Z.S.

Effect of the temperature on the composition of cymene fractions during the alkylation of toluene by catalysts based on aluminum chloride. Zhur. prikl. khim. 38 no.5:1185-1188 My '65.

(MIRA 18:11)

PUTILOVA, V.M.; BALEZIN, N.V.; BARBASHOV, A.I.

Protective action of amylacea in the dissolution of iron
in hydrochloric acid. Zhur, fiz. khim. 39 no.2:494-496 F '61.
(MIRA 17:8)

1. Moskovskiy tekhnologicheskiy institut pishchevoy promysh-
lennosti.

ORESHKO, V.F. [deceased]; GORIN, L.F.; RUDENKO, N.V.

    Composition of the gaseous products of a starch radiolysis.
    Zhur.fiz.khim. 36 no.5:1084-1085 My '62.   (MIRA 15:8)

    1. Moskovskiy tekhnologicheskiy institut pishchevoy promyshlennosti.
            (Starch) (Radiation) (Gases--Analysis)

CA

2

Physicochemical analysis of binary systems formed by urea with phenols. I. Electric conductivity, viscosity, and density. D. E. Dionis'ev and N. Z. Rudenko (V. M. Molotov State Univ., Rostov on Don). Zhur. Obshchei Khim. (J. Gen. Chem.) 22, 51–8(1952).—(1) The compd. CO(NH₂)₂.2PhOH, m. 60.6°, is considerably dissocd.; one of the eutectics of the system (33.4 mol. % CO(NH₂)₂) has the same m.p. as the compd. The viscosity η isotherms at 120° and 135° are slightly convex to the compn. axis, which is indicative of the absence of a chem. compd. at these temps. Nor does the temp. coeff. of η in this temp. range indicate a compd. The d. isotherms have the same shape as the η curves, and the elec. cond. (κ) isotherms are of the same type. Curves of κη and of the temp. coeff. of κ show no singular points. (2) In the system CO(NH₂)₂–o-C₆H₄(OH)₂, which forms a 1:1 compd., the η isotherms at 120 and 135° have max., at 52.5 and 55 mol. % CO(NH₂)₂, resp. The curve of the temp. coeff. of η has a max. at 50 mol. %. The plots of the d. are straight lines. The κ isotherm at 120° has a min. at about 52 mol. % CO(NH₂)₂, and one of its branches has a max. at 35 mol. %. At 135°, the min. is preserved, but the max. disappears. The κη curves have an inflection point at about 50 mol. %, and the temp. coeff. has a max. at that point. II. Ibid. 58–65.—(1) In the

L.L. Organic Chem.

system CO(NH₂)₂–m-C₆H₄(OH)₂. η has a max. at 45 mol. % CO(NH₂)₂ at 120°, and at about 35 mol. % at 135°. The temp. coeff. has a max. at 50 mol. % at 135°. The d. isotherms are slightly convex to the compn. axis. The κ isotherms at 120° has an inflection at 50 mol. %; at 135° there is no indication of a compd. The κη are similar to the κ curves. The curve of the temp. coeff. of κ has a max. at 55 mol. % CO(NH₂)₂, and, besides, 2 minima. (2) In CO(NH₂)₂–C₆H₄(OH)₂, η has a max. at 55 mol. % 150°. The temp. coeff. has a max. at 50 mol. % at 135°, but not at curves of κ and of κη show no singularities. The temp. coeff. of κ has 2 maxima, the higher of the two at 50 mol. %, and 2 minima. There is, evidently, a 1:1 compd.   N. Thon

RUDENKO, N. Z.

Chemical Abst.
Vol. 48
Apr. 10, 1954
General and Physical Chemistry

(3)

/ Physicochemical analysis of the binary systems formed by urea with aromatic acids. N. Z. Rudenko and D. E. Dionis'ev (V. M. Molotov State Univ., Rostov-on-Don). Zhur. Obshchei Khim. 23, 856-9(1953); cf. C.A. 46, 8818g.— The viscosity, d., and elec. cond. of the following binary systems were studied at 120, 135, and 150°: urea-benzoic acid (I), urea-salicyclic acid (II). The elec. cond. of the system, urea-anthranilic acid (III), was also studied at 115, 130, and 145°. In I, the viscosity showed a single max. at 60 mol. % urea (120°) and 70% urea (150°). In II, the more pronounced viscosity max. occurred at approx. 60%. In both I and II, the temp. coeffs. of viscosity were greatest in the 50% region. The ds. for I and II were linear over the entire concn. range. In I, the function ηX (viscosity times elec. cond.) had a min. at 50% with max. on either side. In system II, ηX was a max. at 75% urea. In III, the elec. cond. showed a sharp max. at 90% urea (145°). The formation of the compd. CO(NH₂)₂·C₆H₅COOH is indicated in I. Two compds. evidently form in system II: CO(NH₂)₂·C₆H₄(OH)COOH and 2CO(NH₂)₂·C₆H₄(OH)COOH. In III, an acid-base reaction is indicated. Prolonged heating of equimolar mixts. above 150° produced CO₂, NH₃, and a difficultly sol. substance.   R. D. Misch

RUDENKO N.Z.

U S S R .

Physicochemical analysis of the binary systems formed by urea with aromatic acids. N. Z. Rudenko and D. E. Dionis'ev. J. Gen. Chem. U.S.S.R. 23, 676-8(1953)(Engl. translation).—See C.A. 48, 3776h. H. L. H.

RUDENKO, N.Z.;   DIONIS'YEV, D.Ye.

Physicochemical analysis of binary systems formed by urea and aliphatic acids. Zhur.ob.khim. 23 no.5:721-725 My '53.   (MLRA 6:5)

1. Rostovskiy Gosudarstvenniy universitet imeni V.M. Molotova, Laboratoriya organicheskoy khimii.   (Systems (Chemistry))
(CA 47 no.17:8494 '53)

RUDENKO, N. Z.

USSR/ Chemistry   Reaction processes

Card   : 1/1   Pub. 151 - 10/33

Authors   : Rudenko, N. Z., and Dionusyev, D. E.

Title   : Reaction of urea with phenols investigated by the physico-chemical
                analysis methods. Part 4.

Periodical   : Zhur. ob. khim. 24/8, 1327 - 1332, August 1954

Abstract   : Systems formed by urea and p-nitrophenol, o-nitrophenol, 2.4-dinitrophenol
                and 2,4,6-trinitrophenol were investigated to determine the effect of
                position and number of nitro groups in the phenol molecule on the nature
                of its reactions with urea. The viscosity, density, electrical
                conductivity and fusibility of the investigated systems, were determined.
                Cleavage was established in two of the experimental systems. Ten
                references: 7 USSR and 3 German (1906 - 1953). Graphs.

Institution : State University, Rostov/Don

Submitted   : February 17, 1954

RUDENKO, N.Z.

U S S R J

7681*   Reaction of Urea With Phenols, by Physical-Chemical Analysis Methods. Issledovanie vzaimodeistviia mocheviny s fenolami metodami fiziko-khimicheskogo analiza. V. (Russian.) N. Z. Rudenko and D. E. Dionis'ev. Zhurnal Obshchei Khimii, v. 25, nr. 2, Feb. 1955, p. 265-270.

Viscosity, electrical conductivity, and fusibility of systems of urea and α-naphthol, β-naphthol, or m-cresol. Graphs. 11 ref.

Rostov State U.

RUDENKO, NZ

Interaction of acetamide with some aliphatic acids. N. Z. Rudenko, Z. K. Dzhelomanova, and D. E. Dionisyev. Zhur. Obshchei Khim. U.S.S.R. 25, 2311-15(1955)(English translation).—See C.A. 50, 12815g.   B. M. R.

Rudenko, N. Z.

Interaction of acetamide with some aliphatic acids as studied by the methods of physicochemical analysis. N. Z. Rudenko, Z. K. Dzhelomanova, and D. E. Dionis'ev (State Univ., Rostov) Zhur. Obshchei Khim. 25, 2430–5(1955).— Compn.-property diagrams were detd. at 70°, 80°, and 90° for AcNH₂ binary systems with AcOH, PrCO₂H, AmCO₂H, and C₅H₆CO₂H, in respect to m.p., d., viscosity, and cond. The results, shown graphically, indicate the existence of compns. in the liquid state whose compn. agrees with AcNH₂·AcOH, AcNH₂·PrCO₂H, AcNH₂·AmCO₂H, and Ac-NH₂·C₅H₆CO₂H (cf. C.A. 47, 8494d)   G. M. K.

BUDENKO, N. Z.

Physicochemical analysis of binary systems formed by
urea with phenols. V.   N. Z. Rudenko and D. E. Dionis'ev

(State Univ., Rostov-on-Don). *Zhur. Obshchei Khim.* 25,
249-??). *Gen. Chem. U.S.S.R.* 25, 249-52(1955)(Engl.
??)   cf *C.A.* 46, 6018g; 47, 8494d.—M.p.
?? ?? cond. of systems $CO(NH_2)_2$-o-$C_{10}H_7OH$,
?? ??H·OH and $CO(NH_2)_2$-m-MeC_6H_4OH were
?? ?? the results shown graphically $CO(NH_2)_2$-o-
$C_{10}H_7OH$ shows a eutectic diagram which agrees with results
of Puschin and König (*C.A.* 22, 4336); viscosity curves
?? 150° pass through max. at 75 mole-% $CO(NH_2)_2$;
?? curves show no singularity. In this system,
there is formed a 2 $CO(NH_2)_2$·o-$C_{10}H_7OH$ compd. The
system of $CO(NH_2)_2$-2-$C_{10}H_7OH$ shows complex compd.
formation with eutectics at 105° and 104°, composed of,
resp. 25 mole-% and 42.5 mole-% $CO(NH_2)_2$; the compound
$CO(NH_2)_2$·2(2-$C_{10}H_7OH$) has m.p. max. at 108°; viscosity
curves 125-45°) pass through a max. at 75 mole-% CO-
$(NH_2)_2$, indicating the possible existence also of 2 $CO(NH_2)_2$·
3 $C_{10}H_7OH$. cond. curves show no singularity, the same
being true of d. curves. The system of $CO(NH_2)_2$-m-
C_6H_4OH shows a m.p. diagram which agrees with that of
Puschin *et al.* (cf. above), but a conclusion as to possible
compd. formation cannot be made. Curves of d., cond.,
and viscosity do not indicate clearly any compd. formation;
?? ?? the viscosity curve shows S shape (very shallow)
?? inflection near 50%; at lower temp the curvature is
reduced, this effect may be caused by association of cresol.
                              G. M. Kosolapoff

DZHELOMANOVA, Z.K.; RUDENKO, N.Z.; DIONIS'YEV, D.Ye.

Physicochemical study of the interaction of acetamide with certain aromatic acids. Zhur.ob.khim.26 no.5:1322-1326 My '56. (MLRA 9:9)

1.Restovskiy-na-Donu gosudarstvennyy universitet.
(Acetamide) (Acids, Organic)

RUDENKO, N. Z.

Interaction of acetamide with some aromatic acids, as studied by physicochemical analysis. Z. K. Dzhelomanova, N. Z. Rudenko, and D. E. Dionis'ev. J. Gen. Chem. U.S.S.R. 26, 1493-6(1956)(English translation).—See C.A. 51, 14337a.
B. M. R.

RUDENKO, N.Z.

Interaction of acetamide with phenols as studied by methods of physicochemical analysis. Z. K. Dzhelo-manova, N. Z. Rudenko, and D. E. Dionis'ev (State Univ., Rostov-on-Don). Zhur Obshchei Khim. 26, 1866-72(1956); cf. C.A. 50, 14337a.—The thermal curve of the system $AcNH_2$-PhOH showed a compd. $AcNH_2.2PhOH$, m. 42.5°, and eutectics, m. 29° with 55 mole % amide and m. 30.2° with 10 mole % amide; viscosity-temp. curves of the system are convex toward the compn. axis and the d. curves are concave; cond. reaches a max. at 90 mole % amide at 85°. The thermal curve of the system $AcNH_2$-pyrocatechol has a eutectic at 40 mole % amide, m. 26°, and transition point at 37.6°, at 74 mole % amide; viscosity and d. curves are concave to the compn. axis; cond. shows a max. at 80 mole % amide. The thermal curve of the $AcNH_2$-resorcinol system shows uncrystallizable melts in mid region and glass formation; viscosity curves are convex to the compn. axis, and the cond. curves are slightly convex. The thermal curve of the $AcNH_2$-hydroquinone system has a eutectic at 65° and 83 mole % amide, transition point at 100° and 50 mole % amide; the viscosity curves are convex to the compn. axis, whereas d. curves are concave to this axis; cond. curves are convex to the axis. Thermal curves of systems of $AcNH_2$ with 3 isomeric nitrophenols gave: eutectic with ortho isomer at 39.5° and 15 mole % amide, 1:1 compd. with the meta isomer, m. 43.1°, and eutectics at 47° and 69 mole % amide, and 47.8° and 38.5 mole % amide; with the para isomer there forms a 1:1 compd., m. 95°, and eutectics at 65° and 87 mole % amide, and 78° and 29 mole % amide. The system $AcNH_2$-2,4-dinitro-phenol has a eutectic at 76 mole % amide, m. 60°; with $AcNH$-2,4,6-trinitrophenol there is a eutectic at 79 mole % amide; m. 30°, and a transition point, m. 68.8°, at 56.5 mole % amide, with indication of an incongruently melting compd.   G. M. Kosolapoff

SIDORENKO, L.M.

Effect of the nature of a catalyst on the isomeric composition of ethylene, Zhur. prikl. khim. 38 no.4:895-900 Ap '65.
(MIRA 18:6)

1. Donetskoye otdeleniye Instituta organicheskoy khimii AN UkrSSR (for all authors).

HUBKA, M.L., SHEIN, I.V.

Reaction of urea with phenols in dilute solutions. Zhur. ob. khim.
31 no.6:1921-1926 Je '61. (MIRA 14-6)

1. Leningradskiy meditsinskiy institut imeni (Leningrad Medical Institute
khirurgicheskikh aktivov i osobo chistykh veshchestv.

DZHELDMANOVA, Z.K.; RUDENKO, N.Z.; TOPAL, N.K.

Physicochemical analysis of the ternary system urea $-\beta-$ naphthol - acetamide. Zhur. ob. khim. 34 no. 3:731-734 Mr '64.   (MIRA 17:6)

1. Donetskiy meditsinskiy institut i Donetskoye otdeleniye Instituta organicheskoy khimii AN UkrSSR.

BABIN, Ye.P.; MARSHTUPA, V.P.; RUDENKO, N.Z.; BORODINA, Z.S.; SIDORENKO, L.M.

Kinetics of the formation of isomers of isopropyltoluenes in toluene alkylation by propylene. Izv.vys.ucheb.zav.;khim.i khim.tekh. 6 no.5:787-794 '63.
(MIRA 16:12)

1. Donetskiy meditsinskiy institut i Donetskoye otdeleniye instituta organicheskoy khimii AN UkrSSR.

SHEYNKMAN, A.K.; RUDENKO, N.Z.; KAZARINOVA, N.F.; LYSENKO, V.B.

Structure of quaternary salts of 4-(p-dimethylaminophenyl)- and 4-(p-dimethylaminostyryl)pyridines. Zhur.ob.khim. 33 no.6:1964-1969 Je '63. (MIRA 16:7)

1. Donetskoye otdeleniye Instituta organicheskoy khimii AN UkrSSR i Donetskiy gosudarstvennyy meditsinskiy institut.
(Pyridinium compounds)

RUDENKO, N. Z.

Reaction of urea with hexoses. Zhur. ob. khim. 33 no.1:
276-282 '63.   (MIRA 16:1)

1. Donetskiy gosudarstvennyy meditsinskiy institut.

(Urea)   (Hexoses)

SOV/79-29-5-66/75

5(4)
AUTHOR: Rudenko, N. Z.

TITLE: Reflection of   Picrate Formation in the Curves
of the Ultraviolet Absorption Spectra (Ob otrazhenii
obrazovaniya pikratov na krivykh ul'trafioletovykh spektrov
pogloshcheniya)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1718-1724
(USSR)

ABSTRACT: Under investigation were the UV-absorption spectra of picric
acid, pyridine, p-toluidine, urea; furthermore picrates of
pyridine, p-toluidine, urea, at different concentrations in
three solvents: water, ethyl alcohol and carbon tetrachloride.
The spectrophotometer SF-4 served for the investigation. The
picrate formation is such that the absorption curves found
do not coincide with the curves according to Beer's law.
Number and position of the points of importance do not change.
The strongest deviations occur in the shortwave range of
the spectrum;they are the larger, the smaller the polarity
of the solvent is. There are 9 figures and 12 references,
7 of which are Soviet.

Card 1/2

Reflection of   Picrate Formation in the Curves of the Ultraviolet
Absorption Spectra

SOV/79-29-5-66/75

ASSOCIATION: Stalinskiy gosudarstvennyy meditsinskiy institut
             (Stalino State Medical Institute)

SUBMITTED: February 11, 1958

Card 2/2

RUDENKO, N. Z.

Examination of the interaction of phenyl- and diphenyl-
ureas with organic acids by methods of physico-chemical
analysis. N. Z. Rudenko (State Univ., Rostov-on-Don).
Zhur. Obshchei Khim. 27, 2030-6(1957); cf. C.A. 49,
6095d; 51, 7298i.—The compn.-property diagrams are re-
produced for the systems formed by binary mixts. of Ph-
NHCONH₂ and (PhNH)₂CO on one hand and AcOH, Pr-
CO₂H, AmCO₂H, ClCH₂CO₂H, CCl₃CO₂H, BrOH, and
salicylic acid on the other. The properties studied included
m.p., d., viscosity, cond., and absorption spectra of aq.
solns. All binaries except those contg. PrCO₂H and Am-
CO₂H indicate the existence of interaction between the com-
ponents, as shown by singular points on the curves. Ph-
NHCONH₂-AcOH system has a eutectic at 90 mole %
AcOH, m. 3°; the PhNHCONH₂-PrCO₂H system has a
eutectic at 91% RCO₂H and m. −7°; PhNHCONH₂-
AmCO₂H system has a eutectic at 90 mole % RCO₂H, m.
−4°; ClCH₂CO₂H-PhNHCONH₂ has a eutectic at 80
mole % RCO₂H, m. 41.5°, and a transition point at 70°
and 50 mole % RCO₂H; PhNHCONH₂-CCl₃CO₂H eutectic
is at 80 mole % RCO₂H, m. 34°, and the transition point is
at 50 mole % compn., m. 71.5°.   G. M. Kosolapoff

USSR/Thermodynamics. Thermochemistry. Equilibria. Physico-Chemical B-8
          Analysis. Phase Transitions.

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26176

Author   : Z.K. Dzhelomanova, N.Z. Rudenko, D.B. Dionis'yev
Title   : Study of Interaction of Acetamide with Some Aromatic Acide
           by Method of Physico-Chemical Analysis.

Orig Pub : Zh. obshch. khimii, 1956, 26, No 5, 1322-1326

Abstract : The fusibility, viscosity, density and electrical conduc-
           tivity of the systems of acetamine (I) with benzoic (II),
           cinnamonic (III), salycilic (IV) and anthranilic (V) acids
           were studied. A compound of the composition 1 : 1 forms
           in the system I - II. The composition of the incongruently
           melting compound in the system I - III is 1 : 2; the
           eutectic point corresponds to 67 mol.% of I and 56°; the
           transition point is at 56 mol.% and 70°. The fusibility
           curve of the system I - V consists of two branches cros-
           sing at the eutectic point (68 mol.% of I and 48°). The
           presence of chemical interaction is assumed on the basis of
           the curves of electrical conductivity.
Card   : 1/1

RUDENKO, N.Z.

Physicochemical analysis in the study of phynyl and biphenyl urea
reactions with organic acids. Zhur. ob. khim. 27 no.8:2030-2036
Ag '57.   (MLRA 10:9)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.
                    (Urea)   (Acids, Organic)

RUDENKO, O.; CHAYEVSKAYA, N. [Chaieva'ka, N.], red.; LEPCHENKO, K.,
       tekhn.red.

       [In the Dnieper reaches] Na plesakh dniprovykh. Kyiv, Derzh.
       vyd-vo polit.lit-ry URSR, 1960. 30 p.   (MIRA 13:5)
              (Dnieper River--Navigation)

RUDENKO, O.A.; IZRAYETSKAYA, N.N.

Orbit elements of 16 meteors. Astron.tsir. no.202:19 Je '59.
(MIRA 13:4)

1. Odesskaya astronomicheskaya observatoriya.
(Meteors)

S/169/62/000/002/053/072
D228/D302

AUTHORS: Kramer, Ye. N., Rudenko, O. A. and Teplitskaya, R. B.

TITLE: Calculating the elements of the geocentric orbit of
              meteors

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 2, 1962, 3, ab-
              stract 2G16 (Mezhdunar. geofiz. god. Inform. byul.,
              no. 3, 1961, 71-78)

TEXT: The method used at the Odesskaya astronomicheskaya observa-
toriya (Odessa Astronomic Observatory) for measuring meteor pho-
tographs is stated. Schemes are given for calculating the radiant
coordinates, heights, speeds, and braking of meteors at different
points on their trajectories. These magnitudes are used as original
quantities for calculating the atmosphere's density and temperature
in the meteor zone (a height of 70 - 120 km). /¯Abstracter's notes
Complete translation._7

Card 1/1

S/035/60/000/006/028/038
A001/A001

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 6,
p. 66, # 5319

AUTHORS: Rudenko, G. A., Izrayetskaya, N. N.

TITLE: Orbital Elements of 16 Meteors

PERIODICAL: Astron. tsirkulyar, 1959, iyunya 5, No. 202, p. 19

TEXT: Radiants and elements of the orbits of 16 meteors are presented
which were photographed at the Odessa Observatory in 1957.

Translator's note: This is the full translation of the original Russian
                     abstract.

Card 1/1

BABENKO, P.; FISHER, L.; SAMARIN, A.; RUDENKO, P.

This is most important in educational work.   Sov. profsoiuzy
17 no.18:21 S '61.   (MIRA 14:8)
                    (Community centers)
                    (Trade unions)

RUDENKO, P.; CHUTOV, A.Ye.; SACHKOV, S.T.; MARDYYEV, M.M.; SOKOL'SKIY, I.Ye.

Throughout the Soviet Union. Veterinariia 36 no.9:92-95 S '59.

(MIRA 12:12)

(Veterinary medicine)

ZABRODSKIY, A.G.; SMIRNOV, N.K.; Prinimali uchastiye: RUDENKO, O.A.;
        FILIPENKO, I.S.; SEMENCHENKO, A.D.; KORCHEVSKIY, M.I.;
        TEMASHNYUK, D.S.; SHVARTS, S.P.; BRITSKAYA, Z.A.; RESHETOVA, L.N.;
        SHAKHOVA, V.A.; DANILENKO, P.L.

        More about the effect of the amount of water and of its automatic
        proportioning in the boiling to pulp of raw materials. Trudy
        UkrNIISP no.5:13-20 '59.   (MIRA 16:11)

        1. Vashkovskiy zavod (for Rudenko, Filipenko, Semenchenko,
        Korchevskiy, Temashnyuk, Shvarts, Britskaya). 2. Chernovitskiy
        spirtovyy trest (for Reshetova, Shakhova). 3. Ukrainskiy
        nauchno-issledovatel'skiy institut spirtovoy i likero-vodochnoy
        promyshlennosti (for Danilenko).

S/831/62/000/008/012/016
E032/E114

AUTHORS: Kramer, Ye.N., Teplitskaya, R.B., Rudenko, O.A.,
             Izrayetskaya, N.N., and Vorob'yeva, V.A.

TITLE: Photographic observations of meteors of Odessa

SOURCE: Ionosfernyye issledovaniya (meteory). Sbornik statey,
             no.8. V razdel programmy MGG (ionosfera). Mezhduved.
             geofiz. kom. AN SSSR. Moscow, Izd-vo AN SSSR, 1962,
             75-96

TEXT: The Odesskaya astronomicheskaya observatoriya (Odessa
Astronomical Observatory) has been carrying out photographic
observations of meteors from three points, namely, Mayaki (A),
Kryzhanovka (B), and the Botanical Gardens (C). The base-line
lengths are AB = 44896 m, AC = 38622 m, and BC = 13582 m. Each
photographic installation consists of four НАФА -3c/25 (NAFA-3s/25)
cameras (F = 25 cm, D:F = 1:2.5, field of view 39° x 53°). At the
point A one of the cameras is pointed towards the zenith and the
remaining cameras point East, South and West at angles of 35° to the
vertical. The photographic cameras at points B and C are set up so
that the common region for all the stations is at a height of

Card 1/ 3

Photographic observations of ...   S/031/62/000/008/012/016
                                       E032/E114

80-100 km. All the cameras are fixed. Time markers are produced
by a variable shutter. Observations carried out during 1957-1958
show that the NAFA-3s/25 cameras are not sufficiently effective for
meteor astronomy. They have inadequate objective resolution and
are subject to mechanical vibrations which give rise to defocussing.
The vibrational effects were later localised and isolated. The
photography was carried out on type ДК (DK) films (sensitivity
300-350 GOST units). The development was carried out automatically.
A calendar of the observations is reproduced covering the period
July 1957 to December 1958. A detailed algebraic scheme is out-
lined for the determination of the coordinates, heights, velocities
and decelerations. Estimates are also given of experimental errors
in these quantities. In a typical case the errors in the height,
velocity (at 54.15 km/sec) and deceleration (at 15.2 km/sec2) were
found to be $\pm$ 0.09 km, $\pm$ 0.42 km/sec and $\pm$ 2.6 km/sec2
respectively. The magnitude of the meteors was determined with the
aid of a special apparatus producing an "artificial meteor". In
addition comparisons were made with the diurnal motion of stars
(cf. preceding abstract). The atmospheric density was calculated
Card 2/3

Photographic observations of ...   S/831/62/000/008/012/016
                                          E032/E114

from formulae reported by L.G. Jacchia [Technical reports nos. 2, 3 and 10 (Harvard reprints series II, nos. 26, 31 and 44 respectively)]. Detailed numerical results are reproduced. Altogether 106 base line photographs were obtained, 23 of which were recorded at all three points. A detailed catalogue is reproduced showing the geocentric and heliocentric elements and other information for 16 meteors recorded in 1958. There are 4 figures and 5 tables.

Card 3/3

KRAMER, Ye.N.; RUDENKO, O.A.; TEPLITSKAYA, R.B.

Calculating elements of the geocentric orbit of meteors.
Mezhdunar.geofiz.god   no.3:71-78 '61.   (MIRA 14:10)

1. Astronomical Observatory of Odessa University.
                    (Meteors)

S/035/62/000/004/024/056
A001/A101

AUTHORS: Kramer, Ye. N., Rudenko, O. A., Teplitskaya, R. B.

TITLE: Calculation of geocentric orbital elements of meteors

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 4, 1962, 66,
             abstract 4A552 ("Mezhdunar. geofiz. god. Inform. byul.", 1961,
             no. 3, 71-78, English summary)

TEXT: The authors describe the methods of measuring meteor photographs,
employed at the Odessa Astronomical Observatory. They present schemes for calcu-
lating radiant coordinates, altitudes, velocities and dragging of meteors at
various points of their paths. These quantities are adopted as initial data for
determining density and temperature of the atmosphere in the meteor zone (70 to
120 km altitude).

                                                   Authors' summary

[Abstracter's note: Complete translation]

Card 1/1

S/169/60/000/006/016/021
A005/A001

Translation from: Referativnyy zhurnal, Geofizika, 1960, No. 6, p. 182, # 6770

AUTHORS: Rudenko, O. A., Izrayetskan, N. N.

TITLE: Elements of the Orbits of 16 Meteors

PERIODICAL: Astron. tsirkulyar, 1959, 5 iyunya, No. 202, p. 19

TEXT: The radiants and elements of the orbits of 16 meteors are
presented, which were photographed by the astronomical observatory at Odessa in
1957. The basis length was 38 km. The photographs were taken during the
standard meteor patrols with an obturator of variable section.

Translator's note: This is the full translation of the original Russian
                    abstract.

Card 1/1

L 15711-65   EWT(1)/EWG(v)/EWA(d)/EEC-4/EEC(t)   Pe-5/Pae-2   AFFTC/ESD-3/ESD(t)/
AEDC(a)/SSD/SSD(b)/BSD/AFWL/AFETR/AFTC(a)   GW
ACCESSION NR: AR4049322   S/0269/64/000/008/0073/0073

SOURCE: Ref. zh. Astronomiya. Otdel'ny*y vy*p., Abs. 8.51.473   B

AUTHOR: Kramer, Ye. N.; Vorob'yeva, V. A.; Rudenko, O. A.

TITLE: Work by the meteor patrol of Odesskaya Astronomicheskaya Observatoriya
(Odessa Astronomical Observatory) during the International Geophysical Year

CITED SOURCE: Tr. Odessk. un-ta. Izv. Astron. observ., v. 152, No. 2, 1963, 5-63

TOPIC TAGS: upper atmosphere, astrophysics, meteor patrol, meteor orbit, meteor
stream, comet, atmospheric density

TRANSLATION: This paper presents the results of an analysis of photographic
observations of meteors during the International Geophysical Year. Base photo-
graphs of 106 meteors were obtained. Heliocentric orbits were computed for 90
of these; 41 of the meteors belonged to known meteor streams and the others were
sporadic meteors. A study was made of the distribution of meteor orbits in space
and the relationship between meteor streams and comets. Ten of a total of 90
meteors had hyperbolic orbits. An attempt was made to explain the presence of
meteor bodies moving in hyperbolic orbits on the basis of processes occurring
near the earth. Results of computations of atmospheric density on the basis of
Card 1/2

L 15711-65
ACCESSION NR: AR4049322

meteor observations are presented in the form of tables and graphs; these results coincide with data from rocket measurements for heights of 85-95 km. The article gives a description of a method for determining the flight time of a meteor using an obturator with a variable cross section. Bibliography of 32 items. P. Babadzhanov.

SUB CODE: AA   ENCL: 00

Card 2/2

VOROB'YEVA, V.A.; RUDENKO, O.A.

Determining orbits and calculating meteor velocity errors.
Biul. Kom. po komet. i meteor. AN SSSR no. 11:36-46 '65.

(MIRA 18:12)

1. Odesskaya astronomicheskaya observatoriya.

RUDENKO, O.V.

New textile fabric "tivvt." Leh.prom.no.1:5-8
Ja-Mr '64.

(MIRA 19:1)

MOGIL'NIKOV, S., inzhener; RUDENKO, P., inzhener.

Strut for holding the manipulator. Mast.ugl.5 no.4:22 Ap '56.
(Fastenings)   (MLRA 9:7)